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OFFICIAL PUBLICATION

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SPEECH SCIENCE: Acoustics in Speech *by* **Richard A. Hoops,** *Ball State Teachers College.* "All speech therapists as well as all other individuals who work with speech should gain invaluable—indeed, indispensable—insight from the view of speech that the author presents."—*The Volta Review. Pub. Aug. '60, 148 pp., 44 il., $4.75*

SPEECH AND HEARING PROBLEMS: A Guide for Teachers and Parents *by* **Charles E. Palmer,** *Northwestern State College, Natchitoches, La.* In an informal, easy-to-read style Dr. Palmer answers some of the questions so often asked about these problems, explains what may be done when professional therapists are not available, and suggests ways in which teachers and parents may assist the professional worker if a child is enrolled in a special program for speech and/or hearing problems. *Pub. June '61, 152 pp., 15 il., $5.50*

HEARING ENHANCEMENT *by* **John A. Victoreen,** *Colorado Victoreen Laboratory, Colorado Springs.* In the *simplest possible form* Dr. Victoreen explains the general and basic principles which determine how an ear and a hearing instrument function together. He deals with the transmission, reception, and amplification of speech sounds. *Pub. Nov. '60, 200 pp., 56 il., $7.50*

CLINICAL AUDIOMETRY *by* **Michel** *and* **Claudine Portmann,** *both of Bordeaux Univ.* **A practical handbook in which will be found the essentials of modern audiology.** CONTENTS: Pure Tone Liminal Audiometry; Supraliminal Audiometry; Speech Audiometry; "Objective" Audiometry; The Diagnostic Value of Audiometry; The Value of Audiometry in Legal and Industrial Medicine; The Value of Audiometry in Therapeutics; Case Finding in a Child Who Is Hard of Hearing; The Audiometric Examination of Children; The Value of Child Audiometry. *Pub. Sept. '61, 384 pp., 147 il., $12.00*

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The CLARKE SCHOOL FOR THE DEAF

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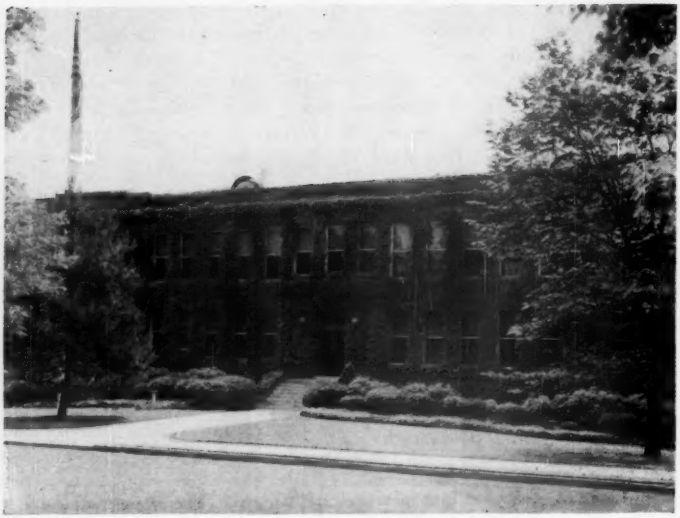

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An endowed school for deaf boys and girls, Clarke School has employed the Oral Method exclusively since its establishment in 1867. Residual hearing is worked with continuously from admission to graduation. Pupils are admitted at four and a half years of age and progress through the Lower, Middle and Upper schools. The course of instruction is planned to fit pupils for high school work with hearing children. The 175 pupils enrolled this year are taught by a faculty of 36 members.

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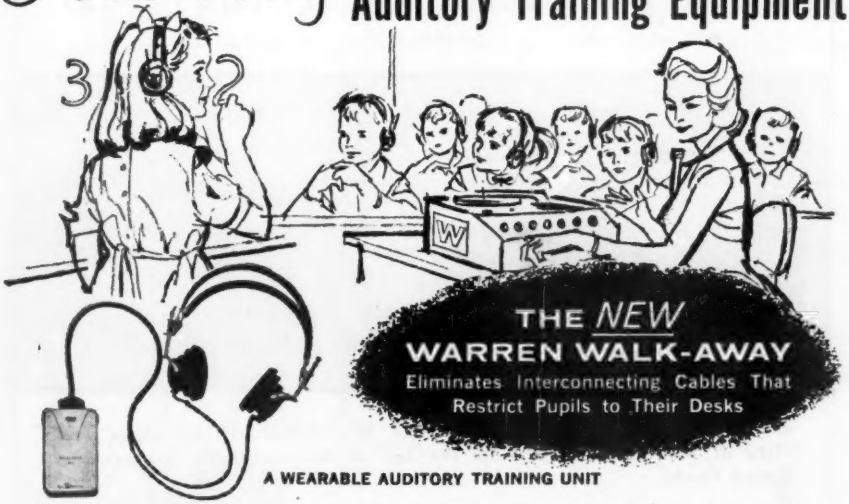

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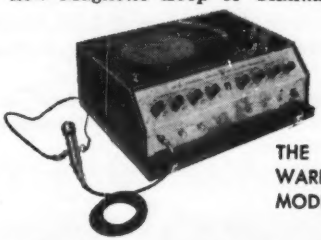

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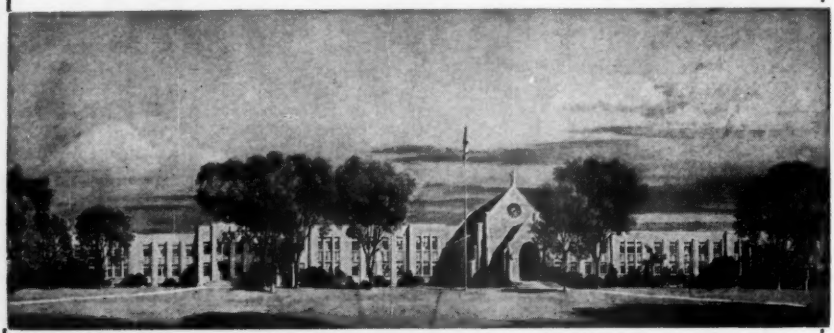

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75 db acoustical gain—135 db output re 0 db SPL.

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Frequency response
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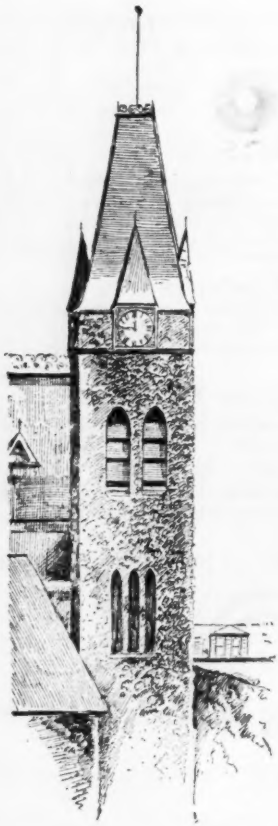

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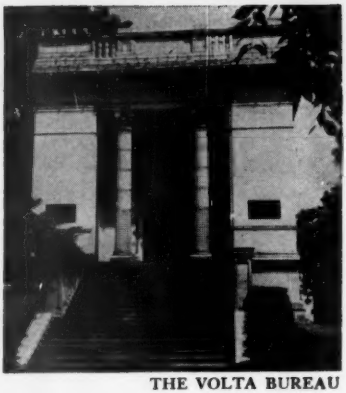
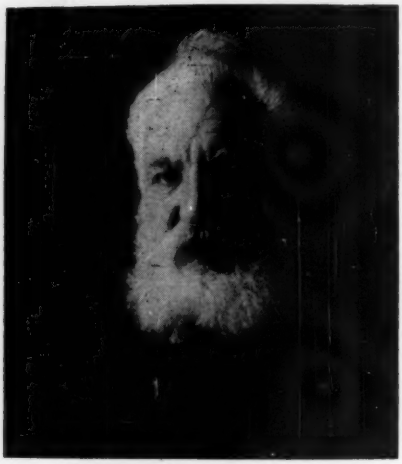


THE VOLTA BUREAU



ALEXANDER GRAHAM BELL

THE ALEXANDER GRAHAM BELL ASSOCIATION FOR THE DEAF welcomes to its membership all who are interested in improving the education of the deaf and the hard of hearing, their ability to communicate with those who hear normally, and their adjustment to life in the hearing world. Its membership fee ($5 a year—$100 for life) includes a subscription to *The Volta Review*. Those wishing to lend additional support to the work of the Association may become sustaining members for a fee of $10 per year.

THE VOLTA BUREAU, headquarters of the Association, is an information center about deafness, founded by Alexander Graham Bell in 1887. Its library on deafness and speech is probably the largest in the world, containing books in twenty or more languages.

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COVER

Children at the Lutheran School for the Deaf, Detroit, express the spirit of Thanksgiving. The school will participate in the program of the 1962 Summer Meeting of the Alexander Graham Bell Association for the Deaf, to be held in Detroit June 26-30, 1962.

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Call For Papers

1962 Summer Meeting

June 26-30, 1962 **Detroit, Mich.**

The Program Committee has set aside Friday morning, June 29, 1962, at the Detroit meeting to present prepared papers on any topic of interest to professional workers in the education of deaf children. Topics and outlines must be submitted for consideration by *December 1, 1961*. Final approval for presentation will be sent to authors by the Program Committee.

The Alexander Graham Bell Association is your professional organization. The summer meeting offers you the opportunity not only to meet with fellow members and others interested in the education of the deaf, but to participate in the program. *You are cordially invited to submit a paper.*

In view of the need for immediate program development, will you please send an outline of your proposed presentation to the Program Chairman:

Dr. Mary Rose Costello
Speech and Hearing Clinic
Henry Ford Hospital
Detroit, Mich.

Maximum time allotted to any paper is 25 minutes. The Program Chairman will communicate directly with you concerning possible acceptance, scheduling on program and the like. Note that if your paper is accepted the Association reserves publication rights in *The Volta Review*. Publication is not, however, guaranteed, even though the paper is presented. The Committe expects that each paper will be delivered by the author or co-author.

A suggested form for submitting your outline is given below. Please utilize it without delay. If you have a topic, here is the chance to speak up.

Title of paper:

Area (Check one): Administration or Supervision _____

Audiology _____	Medicine _____
Psychology _____	Curriculum _____
Language _____	Speech _____
Speechreading _____	Parent Work _____
Other (please specify) _____	

Author's Name:
Professional position or title:
Degrees:
Address:
Type of paper: methodology _____; new idea _____; research _____; other _____.
Outline:

1. Scope of paper (a paragraph or two):
2. Conclusions:

Program Committee, 1962 Summer Meeting

Alexander Graham Bell Association for the Deaf

June 26-30, Detroit, Mich.

THE program of the 1962 Summer Meeting of the Association will open Tuesday morning, June 26, and run through Friday afternoon, June 29, with tours scheduled for the following Saturday. There will be no free afternoon during the week. Headquarters hotel, where all meetings will be held, is the Statler-Hilton. Harriet Green Kopp, principal of the Detroit Day School, is general chairman of the meeting.

Programs throughout the week will be planned for both parent and teacher members of the Association. On Thursday and Friday, parents will hold separate sessions, at which time they will elect officers of the Parents' Section for 1962-64.

At a general business meeting on Friday morning, all Association members will meet to elect nine members to the Board of Directors for four-year terms.

Dr. Mary Rose Costello, Chairman of the Department of Otolaryngology, Henry Ford Hospital, Detroit, will serve as Program Chairman. Assisting her in planning the four full days of the program will be the following committee members: Charlotte Avery (Department of Audiology, Eye & Ear Hospital, Pittsburgh, Pa.); Rebecca Brown (Principal, Day School for the Deaf, Grand Rapids, Mich.); Josephine Carr (Supervisor Speech & Hearing, New York School for the Deaf, White Plains, N. Y.); Robert H. Cole (President, Parents' Section); Dr. Leo Connor (Assistant Superintendent, Lexington School for the Deaf, New York City, N. Y.); Mrs. Sophie French (Assistant Professor, Rackham School of Special Education, Eastern Michigan College, Ypsilanti, Mich.); Dr. Robert Frisina (Director, Hearing & Speech Center, Gailaudet College, Washington, D. C.); Dr. John H. Gaeth (Director, Speech & Hearing Clinic, Wayne State University, Detroit, Mich.); W. Lloyd Graunke (Superintendent, Tennessee School for the Deaf, Knoxville, Tenn.); Dr. Cornelius Goetzinger (Associate Professor of Otology & Hearing & Speech, Kansas University Medical Center School, Kansas City, Kans.); Hattie Harrell (Director, Tucker-Maxon Oral School, Portland, Ore.); Audrey Hicks (Supervisor, Day Classes, Houston, Tex.); Dr. Janet Jeffers (Audiologist, Los Angeles State Teachers College, Los Angeles, Calif.); Alice A. Kent (Supervisor, Day Classes, East Cleveland, Ohio); Dr. Helen Lane (Principal, Central Institute for the Deaf, St. Louis, Mo.); Mrs. Floyd Lehmann (parent), Glenview, Ill.; Ann Mulholland (Assistant Professor Education & Audiology, Northwestern University, Evanston, Ill.); Mary Numbers (Supervising Teacher, The Clarke School for the Deaf, Northampton, Mass.); Thomas H. Poulos (Principal, Michigan School for the Deaf, Flint, Mich.); Alice Streng (Director of Special Education, University of Wisconsin, Milwaukee).

Ex-officio committee members are Dr. George T. Pratt, Association President; Mrs. Kopp; and Jeanette Ninas Johnson, executive secretary of the Association.

Scholarships to Train Teachers of the Deaf

ON September 22 President Kennedy signed legislation authorizing expenditure of $3 million for scholarships and direct assistance to colleges and universities specializing in the training of teachers to work with deaf children. The program will be administered by the U. S. Office of Education.

Under the two-year program, some 360 teachers will begin or complete their training during the next academic year and 340 the year after. Only about 150 to 200 teachers are currently being trained each year, while the estimated need is for 500.

As an early step in launching the new program, Dr. Sterling M. McMurrin, U. S. Commissioner of Education, will name a 12-member National Advisory Committee to help him organize the program. The committee will include representatives of institutions åpproved for training teachers of the deaf and other experts in the field.

The complete text of H.R. 9011 follows:

H.R. 9011

A bill to make available to children who are handicapped by deafness the specially trained teachers of the deaf needed to develop their abilities.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in order to encourage and facilitate the training of more teachers of the deaf, the Commissioner of Education (hereinafter in this Act referred to as the "Commissioner") shall, with the advice and assistance of the Advisory Committee on the Training of Teachers of the Deaf (established by section 5 and hereinafter in this Act referred to as the "Advisory Committee"), establish and conduct a program of grants-in-aid to accredited public and nonprofit institutions of higher education which are approved training centers for teachers of the deaf or are affiliated with approved public or other nonprofit institutions which are approved for the training of teachers of the deaf to assist such institutions in providing courses of training and study for teachers of the deaf and in improving such courses. Such grants-in-aid shall be used by such institutions to assist in covering the cost of such courses of training and study and for establishing and maintaining scholarships for qualified persons who desire to enroll in such courses of training and study, the stipends of any such scholarships to be determined by the Commissioner. The Commissioner shall submit all applications for grants-in-aid under this Act to the Advisory Committee for its review and recommendations, and the Commissioner shall not approve any such application before he has received and studied the recommendations of the Advisory Committee with respect to such application, unless the Advisory Committee shall have failed to submit its recommendations to him after having had adequate time to do so.

SEC. 2. Payments of grants-in-aid pursuant to this Act shall be made by the Commissioner from time to time and on such conditions as he may determine, including the making of such reports as the Commissioner may determine to be necessary to carry out the provisions of this Act. Such payments may be made either in advance or by way of reimbursement.

SEC. 3. For the purposes of this Act—

(a) The term "nonprofit," as applied to an institution, means an institution owned and operated by one or more corporations or associations no part of

the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual;

(b) The term "accredited," as applied to an institution of higher education, means an institution of higher education accredited by a nationally recognized body or bodies approved for such purpose by the Commissioner; and

(c) The term "approved," as applied to training centers for teachers of the deaf, means centers approved by a nationally recognized body or bodies approved for the purpose by the Commissioner, except that a training center for teachers of the deaf which is not, at the time of its application for a grant under this Act, approved by such a recognized body or bodies may be deemed approved for purposes of this Act if the Commissioner finds, after consultation with the appropriate approved body or bodies, that there is reasonable assurance that the center will, with the aid of such grant, meet the approval standards of such body or bodies.

SEC. 4. The Comissioner is authorized to delegate any of his functions under this Act, except the making of regulations, to any officer or employee of the Office of Education.

SEC. 5. (a) There is hereby established in the Office of Education an Advisory Committee on the Training of Teachers of the Deaf. The Advisory Committee shall consist of the Commissioner, who shall be Chairman, and twelve persons appointed, without regard to the civil service laws, by the Commissioner with the approval of the Secretary of Health, Education, and Welfare. The twelve appointed members shall be selected so as to secure on the Committee a balanced representation from among individuals identified with institutions approved for the training of teachers of the deaf, individuals identified with institutions of higher education which are affiliated with institutions approved for the training of teachers of the deaf, individuals who have responsibilities in the teaching of the deaf, and individuals identified with the general public who have demonstrated an interest in the education of the deaf.

(b) The Advisory Committee shall periodically review the operations of the grants-in-aid program established pursuant to this Act with a view to determining the extent to which such program is succeeding in carrying out the purposes for which it was established. On the basis of such reviews the Advisory Committee shall submit to the Commissioner such recommendations with respect to the operation and administration of the program as it may deem advisable, together with any recommendations for legislation which it may deem necessary or desirable to carry out the purposes for which this Act was enacted. Such recommendations, together with the Commissioner's comments thereon, shall be referred to the Secretary of Health, Education, and Welfare for transmittal by him to the Congress.

(c) The Advisory Committee is authorized to review all applications for grants-in-aid under this Act and recommend to the Commissioner the approval of such applications as, in the opinion of the Advisory Committee, contribute to the carrying out of the purposes of this Act, and the disapproval of such applications as, in the opinion of the Advisory Committee, do not contribute to the carrying out of such purposes.

(d) The Commissioner may utilize the services of any member or members of the Advisory Committee in connection with matters relating to the provisions of this Act, for such periods, in addition to conference periods, as he may determine.

(e) Members of the Advisory Committee shall, while serving on business of the Advisory Committee or at the request of the Commissioner under subsection (d) of this section, receive compensation at rates fixed by the Secretary of Health, Education, and Welfare, not to exceed $75 per day, and shall also be entitled to receive an allowance for

(*Continued on page* 463)

TESTING THE HEARING OF PRESCHOOL CHILDREN

MARY WOOD WHITEHURST

MANY of the preschool children seen in hearing and speech centers today present multi-problems rather than the single problem of deafness. As reported by their parents, all have auditory and speech deficiencies of varying degrees. Because hearing loss *is* such a frequent cause of delayed speech and language, we naturally want to establish first the true status of the auditory responses. Finding the decibel threshold is not difficult with children over two years of age, if the sole problem is hearing impairment. If, however, children are younger, and/or there are evidences of mental retardation, language disorder or emotional disturbance, the task is more difficult.

We are not discussing here the differential diagnosis of multiply-handicapped children, but rather the procedures involved in assessing the auditory functioning of any preschool child who has a history of questionable, poor or no response to auditory stimuli regardless of speech, language or behavioral characteristics. A hearing test must be made either to establish or to rule out the existence of hearing loss. The following is a step-by-step description of how this testing is done in one hearing and speech clinic.

After a detailed history has been taken, the child is placed in a soundproofed room where toys appropriate to his age are made available to him. One parent remains in the room, but seldom participates in the testing unless a behavior problem makes it necessary. A staff assistant in charge makes all demonstrations, gives instructions and provides a restraining hand when occasion demands.

Startle Response to Gross Sounds

We are first interested in observing what simple gross sounds will startle the patient. Noises such as these listed, are made behind his back while he is engrossed in play: stirring noise, as a spoon in a cup; crunching of paper; soft squeak of a toy mouse; soft whistle; the tinkle of light bells, followed by stronger ones; loud whistle; snapper and cowbell.

Startle Response to Live Voice Through Microphone

After these subjective observations, the clinician uses an audiometer in a darkened and adjacent room to assess in decibels the child's awareness to live voice. Speech, made into a microphone, is emitted through a loudspeaker into the soundproofed room. All sorts of animal sounds are made; the child or some member of the family is called by name, if he is known to recognize these names; a whistle suddenly interjected is followed by music in the form of a march or dance. These sounds start with minimum intensity and attenuation is gradually increased until the child shows an awareness of the sound. The typical hard of hearing child will respond approximately at the same decibel level each time, unless the sounds are given too rapidly or are repeated too often. The consistency or inconsistency of the response is an important factor in making a differential diagnosis.

Startle Response to Pure Tone

Next the child hears pure tones free-field through the speaker. We observe at what decibel level he alerts to 500, 1000, and 2000 cycles. He is not con-

Mrs. Whitehurst is a staff member in the hearing conservation work of the Manhattan Eye, Ear, Nose and Throat Hospital, and is the author of several books on auditory training.

ditioned at this point to respond in any conventional way. We want this to be a truly startle response and we are, therefore, prepared for the obvious as well as for the subtle and devious response, or no response at all, for these are the least interesting and the least familiar of sounds to a young child. With some children the response is perhaps a cessation of activity, or a brief lift or turn of the head. With babies there may be a mere blinking or sudden opening of the eyes. The older, well-adjusted child may burst into a big smile, indicating that he has heard something. There are dozens of ways that awareness of sound may be shown. The experienced audiologist is watchful for any and all responses.

Conditioned Play Audiometry—Free Field

If at this point we think the child is capable of being conditioned to what is commonly called play audiometry, the staff assistant in the room with the child will demonstrate the desired performance technique. Using a color cone the assistant holds a wooden ring to her ear and in so doing, simulates an exaggerated listening attitude. When the tone (500, 1000 or 2000 cps) is sounded well above the child's awareness or startle threshold, she puts the ring on the stick (indicating that she heard it); then picks up another ring, assumes the same listening attitude as before, and waits for the next tone, which again is given well above threshold. When the child indicates a readiness to play the game, the assistant sits quietly by and lets him perform the task alone. If there is reluctance to play or uncertainty on the part of the child, as to when he moves the rings, she will guide his hand a few times, and with quiet praise for correct play, encourage him to proceed alone. When he begins to respond with consistency, the attenuation is gradually decreased, and ultimately a free field audiogram can be charted. But again this audiogram is only an approximation of his hearing threshold, for free field thresholds are notably poorer than those obtained with earphones, and do not indicate the differential between the two ears.

Conditioned Play Audiometery Through Headphones

Our next objective therefore, is to plot an audiogram with the child wearing headphones. A few children will accept headphones without fuss or bother, but most of them, unless previously conditioned, will reject them. Some few will allow one phone to be held to the ear; others will accept both with headband after seeing the parent wear them. With most of our very young patients, we have to stop at this juncture and make the following suggestion to the parents: Obtain an inexpensive pair of headphones (under $10), have them jacked into the phonograph or radio at home and with music condition the child to a physical acceptance of the earphones. Use of the phones will also contribute to developing his sound awareness. When he has accepted the phones, he is brought back to the clinic and the following test is administered. With earphones in place on the child's head, and with use of pegs and a pegboard, he is conditioned to put a peg into a hole each time he hears a pure tone. Standard audiometric procedures are used for air and bone testing. A variety of toys must be available so that the child's attention is not permitted to lag. Almost any good educational toy may be utilized, such as blocks which are to put into a designated pattern; cubes, squares, triangles and make-believe letters dropped into a toy mailbox; large beads to string, etc.

Test-Retest

If the child has cooperated well, we should by this time have a fairly good impression of his auditory threshold. It is advisable, however, to repeat the test within a week, if possible, to rule out any inconsistencies. At the time of this second visit he will be familiar with his surroundings, with the procedure and will be more relaxed, thus the resulting

audiogram should be more reliable.

Speech Reception Threshold

If the child has sufficient vocabulary and understanding of language to obtain a speech threshold, an attempt should be made, for the speech reception threshold unquestionably is the most reliable indicator of a person's functioning level of hearing. This may be done in a variety of ways. If there is sufficient language, we find that questions and answers provide a quick and effective technique. Starting well above his pure-tone threshold (determined by computing the general average for 500, 1000, 2000 cps for each ear) and gradually decreasing the volume, the clinician asks such questions as:

What is your name?
How old are you?
Where is your Mommy (or Daddy)?
What kind of ice cream do you like best?

The child will answer as long as he hears. The decibel level at which he answers 50 per cent of the questions correctly is the accepted SRT. This test is made with headphones, testing each ear separately. It may also be done free field with the child sitting about three feet from the loudspeaker. We frequently make the free field test to indicate to the parents his actual functioning level. It also serves the purpose when the child refuses headphones.

If the child does not have sufficient speech and language for the question and answer type test, we make use of his existing vocabulary and with familiar pictures or objects on the table ask him to point to the object he hears named. Instead of merely saying the name of the object we use a sentence, as, "Show me the dog."

Speech Reception Threshold Better Than Pure-Tone

Theoretically the speech reception threshold obtained for each ear should nearly approximate the average of the three middle pure-tone frequencies. With children, however, the SRT is usually better than the pure-tone threshold because they are not used *to* or particularly interested *in* the sound of pure tones. They seldom respond to them at actual threshold levels, and therefore allowances must be made for a possible 5-15 decibel discrepancy, depending on the age and behavioral characteristics of the child.

Galvanic Skin Resistance Test

Certainly it is not possible to perform all the foregoing tests on all of the preschool children that visit our clinic. For one reason or another only a small percentage of them can be so thoroughly tested. In many instances we are able to obtain only a startle response. In these cases, we usually resort to the more objective type of electrodermal testing. The galvanic skin resistance test has been described so frequently in current literature that further description of it here will be omitted. Detailed information concerning the manner of its administration, its effectiveness, etc., may be found in the following articles published by the *Volta Review*:

Rosen, Jack, "The Place of GSR Audiometry in Work with Young Children," *Volta Review*, Nov., 1956, 387.

Hardy, William G., "Problems of Audition, Perception and Understanding," *Volta Review*, Sept., 1956, 289.

The galvanic skin resistance test, when successfully administered, indicates the child's sensitivity level to sound, but not necessarily his awareness and functioning level. For this reason the results when interpreted to parents are often misleading. In our clinic we use the test as an additional diagnostic tool, but never as the sole means of making a diagnosis.

With the foregoing information at hand the audiologist is able to provide the background for testing and examination in other areas, such as the developmental, otological and neurological, but we are not ready to give an impression

(*Continued on page* 463)

A System of Recording American-English Speech Sounds

JAMES I. LORE

THE speech teacher is constantly plagued with the problem of recording the sounds of American-English speech. He usually chooses among (1) the symbols of the International Phonetic Alphabet, (2) the use of diacritical markings and (3) some method of describing the sounds. Unfortunately, phonetic symbols are both esoteric and difficult to reproduce. Only special typewriters and specialized printers can reproduce materials involving extensive phonetic transcription. While diacritical markings are more widely used and understood, they are neither as precise nor as well standardized as phonetic symbols, and similarly, they are confined to special typewriters and specialized printers. Finally, it is obvious that such descriptive terminology as "bilabial nasal consonant" is not as economical as the symbol "M." The purpose of this article is to present a method of recording the sounds of American-English using only the upper and lower case characters of a standard alphabet and three other symbols common to both typewriters and printers' stock.

American-English consonants may be divided into two groups, voiced consonants and unvoiced consonants. In this system, all voiced consonant sounds are recorded in upper case letters and all unvoiced consonants are recorded in lower case letters. Each sound, despite the letters used in spelling it, is recorded as it is most frequently described, as follows:

Sound	Symbol
"b" as in "boy"	B
"ch" as in "chick"	ch
"d" as in "day"	D
"f" as in "full"	f
"g" as in "go"	G
"h" as in "home"	h
"j" as in "join"	J
"k" as in "kind"	k
"l" as in "like"	L
"m" as in "meat"	M
"n" as in "new"	N
"ng" as in "song"	NG
"p" as in "pen"	p
"r" as in "run"	R
"s" as in "son"	s
"sh" as in "shy"	sh
"t" as in "toe"	t
"th" as in "thin"	th
"th" as in "them"	TH
"v" as in "vine"	V
"w" as in "wet"	W
"wh" as in "white"	wh
"y" as in "you"	Y
"z" as in "zone"	Z
"zh" as in "seizure"	ZH

Vowel sounds are recorded in a different manner; long vowels are recorded in upper case letters, and short vowels are recorded in lower case letters. Long vowels are those which are diacritically marked with a macron, the vowels that "say their name," such as the "i" sound in "dime." Short vowels are those diacritically marked with a breve, such as the "i" sound in "dim." The "double o" sounds are symbolized by the letter "q." Since the consonant "R" sound and the consonant "L" sound are voiced, they are recorded in upper case letters; therefore, the vowel "r" sound and the vowel "l" sound are recorded in lower case letters. The "schwa vowels" are recorded by underlining the "short u" character for the "neutral schwa" and

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by underlining the "vowel r" character for the "r schwa," when using the typewriter. Printers will set the letters in italic type. The "A" sound in "father" is recorded as "*A*." The diphthongs not already included as "vowels" are the "ou" sound, as in "out," symbolized as "ou," and the "oi" sound, as in "boy," symbolized as "oi." Thus, the vowels and diphthongs are symbolized as follows:

Sound	Symbol
"long a" as in "rate"	A
"short a" as in "rat"	a
"a" as in "father"	*A*
"long e" as in "we"	E
"short e" as in "wet"	e
"long i" as in "dime"	I
"short i" as in "dim"	i
"vowel l" as in "call"	l
"long o" as in "note"	O
"short o" as in "not"	o
"diphthong oi" as in "boy"	oi
"long oo" as in "boot"	Q
"short oo" as in "book"	q
"diphthong ou" as in "out"	ou
"vowel r" as in "her"	r
"schwa r" as in "better"	*r*
"long u" as in "fuse"	U
"short u" as in "fuss"	u
"neutral schwa" as in "circus"	*u*

In addition to the upper and lower case characters of the alphabet and the underline or italic for the "*A*," "*r*." and "*u*" symbols, two other symbols are used, the accent mark and the colon. The accent mark is used to denote the strong syllable of multisyllabic words. The colon is used to indicate a beginning, break or end in this method of transcription. For example, the word "dip" is recorded as :Dip: or the word "father" is recorded as :f*A*'THr: and the sentence "I am a member of the Alexander Graham Bell Association for the Deaf" might be recorded as :I:aM:*u*:MeM'B*r*:*n*V:THu:al'*u*GZaN'D*r*:GRA'*u*M:Bel:*us*O'siA'sh*u*N:for:THu:Def:.

Four symbols sometimes used in recording American-English speech may be added to the above; they are (1) the "*a*" may be used to indicate the "broad a" sound heard between the :a: and the :*A*: in the Eastern American dialect, (2) the "*R*" may be used to indicate the "r" sound as it is sometimes heard in the Eastern American dialect, (3) the "*o*" may be used to indicate the "short o" sound heard between the :o: and the :*A*: in the Eastern American dialect, and (4) the "*t*" may be used to indicate the "glottal plosive" used in initiating vowel sounds or substituted for the :t: sound in some substandard urban speech.

This system was devised to simplify the recording and reproduction of American-English speech. The problem of learning the system should be eased by its relation to standard terminology used in elementary school curricula. The problem of reproducing the symbols should be eased for the symbols employed are on standard typewriters and in standard printer's stock.

Readers interested in the foregoing problem are invited to write to the author at the VOLTA REVIEW *office to give their opinions of his suggestion.*

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THE USE OF RESIDUAL HEARING in the education of deaf children

T. J. WATSON

Dr. Watson is senior lecturer, Department of Education of the Deaf, University of Manchester, England. The article printed here is one of a series based on a course of lectures given at the University of Minnesota in 1961. Other articles will appear in subsequent issues of the **Volta Review**. The entire series will be printed in book form in late spring of 1962 and will be available through the Alexander Graham Bell Association.

HEARING AIDS

Part III

THE discussion of hearing aids that follows will not attempt to describe how electrical hearing aids, either vacuum tube or transistor-operated, work. Its main purpose is to examine the function of hearing aids as means of amplifying speech and to see how they modify speech sounds in the process of conveying them to the ears of children with hearing impairments.

Essentially, any hearing aid has three parts: a microphone, an amplifier and a receiver. The purpose of the microphone is to control the electric current in the amplifier by means of the sound waves which fall upon it. The amplifier, either through vacuum tubes or transistors increases the power in stages, and the receiver transforms the electrical energy back into sound waves. This means that in the first place it is desirable to be able to control the sound waves which fall on the microphone. The distance from the speaker to the microphone affects the input level of the speech entering the microphone. Experimental work by Sivian, Dunn and White (as quoted by Fletcher*) has shown how this level drops as the distance increases. This information is summarized in Table 5.

It should be especially noticed how the higher frequencies are enhanced when speech is close to the microphone and how their intensity diminishes even more rapidly than the intensities of the low frequency sounds as the distance between the speaker and the microphone increases. Whole speech at angles up to 90° from the direct line is not greatly affected by the angle, but the high frequency sounds are again considerably diminished in power. This experimental work was undertaken in an acoustically 'dead' room. In normal rooms the effect will not be identical, although the general pattern will remain the same.

It is therefore now necessary to examine briefly how sound behaves in a room. The sound waves emanate from a speaker's mouth in all directions so that the microphone will receive, not only those waves which have traveled to it by the shortest route, that is, a straight

* Fletcher, Harvey, *Speech and Hearing in Communication*, New York: Van Nostrand, 1953.

Table 5

Distance from speaker to microphone	6 in.	1 ft.	2 ft.	1 metre
Level directly in front of the head (in db) Whole speech	80.9	75.1	69.7	65.4
Speech Band 2800-4000 cps	86.2	75.1	64.4	55.8
Levels at 90° to the side of the head (in db) Whole speech	80.1	74.7	68.0	64.6
Speech Band 2800-4000 cps	82.1	72.2	56.1	48.1

line, but also those which have been reflected back from the surfaces of the room—ceilings, walls and floor. If these surfaces are hard, then a great deal of reflection from surface to surface takes place, so that signals continue to be received by the microphone for a period after the direct signal has ceased. This continued reflection is known as reverberation and its effect will be familiar to those who have listened to speech in cathedrals and large auditoriums. The reverberation in an ordinary room is not, of course, as great as in such extreme cases as these, but it may be sufficient to detract from the intelligibility of the speech. In order, therefore, to overcome the effects of reverberation, acoustic treatment of the room is necessary. John* has found that a reverberation time of about 0.5 sec. is very satisfactory for hearing aid users, but he warns that this needs to be achieved through skillful placement of the absorbent materials. If the absorbent material is concentrated in certain areas of the room the desired effect may not be achieved. Furthermore, it is necessary to have regard for the absorbent properties of the materials used. Some materials absorb high frequency sounds almost entirely, and remove from speech the very sounds which are essential for intelligibility. For appropriate treatment it is therefore necessary to secure the services of an expert.

The effects of reverberation may be reduced by speech close to the microphone, since the greater the pressure of the direct sound waves in relation to those reflected from the surfaces of the room, the less do the reflected waves have an effect on intelligibility. At the same time, when speech is close to the microphone, the level of voice used by the speaker needs to be carefully controlled. If it is too loud it will overload the hearing aid and distort the pattern which is reproduced. It would therefore appear that to enable a hearing aid to operate with its maximum efficiency, speech needs to be delivered in an acoustically treated room at a quiet conversational level at a distance of nine inches to one foot from the microphone.

It was pointed out previously that the microphone will react to all the sound waves which fall upon it. This means that it will respond to sounds other than the speech which it is our main object to convey to the hearing-impaired child. This unwanted sound, or noise, may be generated in the same room as that in which the aid is being used, or it may be transmitted from outside the room, through the structure of the building. Unwanted sounds in the room can be dealt with by diminishing the impact noises through noise-reducing floor coverings and materials fixed to the base of movable objects. Structure-borne sound may require more drastic measures. This brief discussion may be summarized by stating that hearing aids, to be most effective, need to be used in acoustically well-treated rooms.

Although the microphone, amplifier and receiver are separate parts of a hearing aid, the aid functions as a whole and the resultant quality of the speech delivered to the ear is no better than the poorest part of the system. A good quality amplifier will not reproduce speech with high quality if the microphone and the receiver are poor; nor will high quality microphones and amplifiers give optimum results if poor quality receivers are used. Accordingly, it is the over-all performance of the system that is important. Since no hearing aid will reproduce speech with absolute perfection, it is necessary to look at performance in terms of the frequency characteristics and amplitude, or power, of the speech sounds after they have been reproduced.

As far as power is concerned, modern hearing aids are capable of reproducing speech at intensities that are as high as most persons are prepared to tolerate. The amount by which a hearing aid

* John, J. E. J., "Acoustics and Efficiency in the Use of Hearing Aids," *Educational Guidance and the Deaf Child* (A. W. G. Ewing, Ed.), Manchester: Manchester Univ. Press, 1957.

amplifies sound is termed the 'gain' and many small wearable hearing aids now have a gain of 60 to 70 db. This means that if the level of input into the microphone is 65 db, the available output will be 125-135 db. Not all wearable aids have gains of this order, and it is therefore necessary to ensure that when providing hearing aids for profoundly deaf children there is adequate gain to meet their needs.

We noted earlier that some children may have a reduced level of tolerance, so that the area of residual hearing, between threshold and tolerance, is rather limited. In order to prevent such children being exposed to sudden loud sounds, above their tolerance level, many hearing aids now make some provision for some form of automatic volume control. This is known by a number of names, such as *compression amplification*, or *peak-clipping*, depending upon the method by which the limiting of output takes place. Some adjustment can be made as to the actual level at which this limiting occurs, so that the wearer may listen up to his tolerance level.

The frequency characteristics of a hearing aid are normally illustrated by means of what is described as a frequency response curve. This shows either the available gain, or alternatively, the total amplification, of the aid over the range of frequencies within which amplification takes place. In view of the information which has previously been given about the frequencies of speech sounds, it follows that the range required for reproduction of speech should range from about 250 cps to about 6000 cps. Group hearing aids with good microphones and moving coil receivers can give uniform amplification over this range, but the miniature microphones and receivers used in wearable aids are not capable of this. Small microphones are generally poor reproducers of low frequencies, and miniature receivers are less sensitive to high frequencies. It is therefore customary in wearable aids to select microphones and receivers which will supplement the weaknesses of each other and give a reasonably smooth response. The upper over-all limit, however, is in the region of 3000 to 3500 cps and frequencies above this are only weakly reproduced, if at all.

Within this available range of frequencies, studies have been made of patterns which seem to be most appropriate for the majority of hearing aid users. The Electro-Acoustics Committee of the British Medical Research Council examined this matter on an experimental basis and reported in 1947* that the most useful response was one of a 12 db gain per octave from 250-750 cps with a uniform response thereafter, or, as an alternative for patients with a severe loss for the higher frequencies, a rise of 6 db per octave from 750 to 4000 cps. Workers at the Psycho-Acoustic Laboratories at Harvard University, in a report published in 1947,** suggested that the ideal frequency characteristic range should be a uniform one from 300-4000 cps. As an alternative to this uniform response they suggested that there might be a rise of 1 db per octave throughout the range with an alternative tone control setting giving a slope of 6-7 db per octave. This committee also proposed that the maximum output should be 132 db with variant maximum settings at 114, 120 and 126 db. The gain of hearing aids should fall within the range of 40 db as minimal to 80 db as maximal.

In fact, aids with a great variety of frequency response curves are now obtainable as the result of an endeavor on the part of manufacturers to meet the needs of individual patients. Many of these variants meet subjective judgments on the part of users as to how faithfully aids reproduce speech "naturally." Within a few broadly distinc-

* "Hearing Aids and Audiometers," *Medical Research Council Special Reports, Series No. 261*, London: H.M.S.O., 1947.

** Davis, Hallowell, et al, *Hearing Aids: An Experimental Study in Design Objectives*, Cambridge, Mass.: Harvard University, 1947.

tive patterns there does not appear to be a very marked difference in the resultant intelligibility of speech.

The frequency response characteristics of two typical hearing aids is given in Figure 9. Aid A shows a gain that is considerable for lower frequencies and a fairly uniform response in the range of 1100 to 2200 cps. Aid B, which is a behind-the-ear model, shows that it has a much more 'peaky' response. The rate of gain through the frequencies is lower, and there are peaks at 900 and 2000 cps.

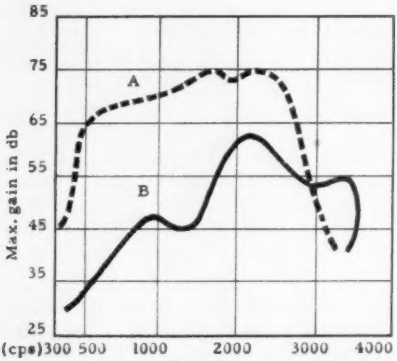

Fig. 9

There is additionally, a smaller peak at 3300 cps before the response falls away rapidly. The gain of this aid is considerably less than that of aid A, and it might be more appropriate for a patient with an approximate hearing loss of about 50 db with a slight falling-off in threshold at 1500 cps and above, than for a more severely deaf patient. The gain of aid A is high and this, taken in conjunction with the smoother and flatter response, would probably make it suitable for a person with a loss of the order of 79-80 db.

Many wearable aids have a tone control incorporated, which alters the frequency response characteristics of the aid by changing the relative gain in the high and/or low frequency sounds. Manufacturers often provide alternative receivers which, with the tone controls, can provide a number of alternative over-all frequency response curves.

The earlier work referred to on basic characteristics of hearing aids, together with the variants introduced by manufacturers, have been almost entirely directed to the needs of deafened adults who, of course, form the majority of hearing aid users. It does not automatically follow, however, that those characteristics are the most appropriate for children deaf from birth. This is an area in which further research is needed, particularly with reference either to making greater use of the frequencies in which there is measurable residual hearing or in examining the effect of the best possible quality reproduction even where the residual hearing is very limited. Some evidence in respect of the latter hypothesis was obtained from a pilot study made by the author in which children listened to speech through an aid with an extended frequency range of up to 8000 cps and through the same aid when speech was sharply filtered at 3000 cps*. The result of this study was summarized in Table 6. The significance of

H.F. Losses: n=24 Flat Losses: n=16	High Freq. Losses (per cent)	Flat Losses (per cent)
Sentences:		
Better with extended freq.	50	56
Better with cut-off @ 3000 cps	17	19
Same	8	0
No discrimination	25	25
Monosyllables:		
Better with extended freq.	42	63
Better with cut-off @ 3000 cps	33	19
Same	25	12
No discrimination	0	6

Table 6

* Watson, T. J., "Some Factors Affecting the Successful Use of Hearing Aids by Deaf Children," *The Modern Educational Treatment of Deafness* (A. W. G. Ewing, Ed.), Washington: The Volta Bureau, 1960.

the work lies in the fact that some children whose hearing fell off rapidly above 3000 cps did better when they heard the words through the aid when the frequency response was extended to 8000 cps than when the response was cut-off at 3000 cps.

If we now look again at the data given in Figure 8 and repeat the information which it gives together with the information which we have about hearing aid A given in Figure 9, we shall have a theoretical illustration of the information which child A will get when the word 'suck' is spoken into his hearing aid (A). This is illustrated in Figure 10 when the input of speech into the aid is 65 db. From the figure it is possible to deduce what he is likely to hear. Thus, he should readily hear the first two formants of the vowel and will very likely be able to identify it from these. He will not hear the third formant of the vowel, nor will he hear the consonant *s*. The consonant *k* is now very close to his threshold and it is quite likely that he may be able to hear something of it. We could conclude that this limited assistance which the aid gives him is not likely to be sufficient to enable him to discriminate the word from other monosyllables in isolation, but it may be enough to help him to recognize it in its context in a sentence.

Hearing aids are made in a variety of sizes and types. Those at present available may be broadly classified as follows:

1. Wearable. This includes individual aids worn on the body, behind the ear or enclosed in a spectacle frame.

2. Desk. These are portable but generally intended for the use of one person at a time.

3. Group. These are normally mains-operated and have sets of receivers and microphones to enable a class of 8-10 pupils to listen simultaneously.

4. Other forms for group listening are—

   a. Wearable aids incorporating a coil which enables them to be used on an electro-magnetic inductance loop system.
   b. Wearable aids which can act as receivers for radio waves emitted by a transmitter controlled by the teacher.
   c. Loudspeakers used in a free field.

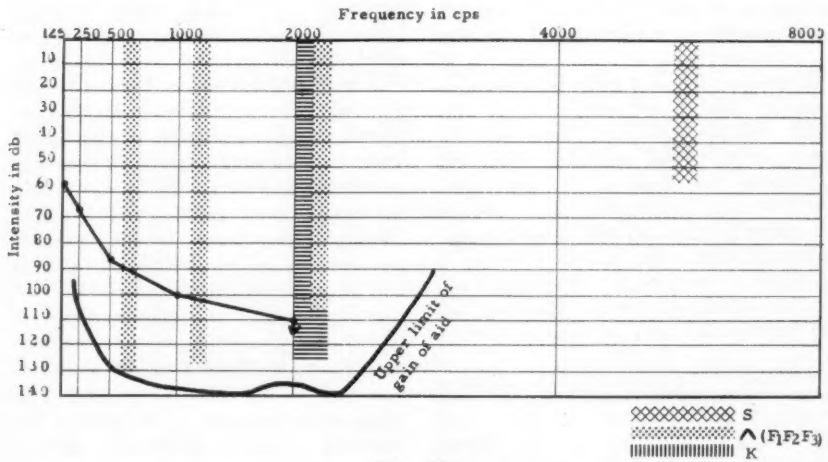

Fig. 10

Each of these types of aids to hearing has its own specific function. Wearable aids can be used outside the classroom as well as inside; when used with an inductance loop system or radio transmission they allow freedom of movement within a room associated with the teacher's speech close to the microphone. Desk and group aids with good quality microphones and moving coil receivers have greater frequency range and are therefore useful for individual or group lessons when high quality reproduction is very desirable (e.g., in speech improvement) and where freedom of movement is not essential. They often have means of monitoring input and calibrating output so that exact information about the signals reaching the ear can be obtained. Equipment with such controls can be used for the purposes of speech audiometery as described in Section II (Oct. VR).

The possibilities of binaural or stereophonic hearing aids has not been discussed. This is because of the fact that, as yet, we have no factual information about their value to deaf children. Experimental work with adults as subjects *,** has shown that they do help discrimination in noisy conditions and give a feeling of 'depth' or 'presence.' Experimental work with deaf children is taking place, and it is hoped that this may provide us with the evidence that is at present lacking. This absence of information does not mean that binaural hearing aids should not be used with deaf children. Indeed, there are reports of successful and pleasurable experiences, but these so far are based on subjective judgments. The case for the value of binaural aids is not proven, although even when factual evidence is available it may be felt that should objective measures show no significant advantages, there may be some subjective value. This, however will be difficult to assess in young deaf children.

With such a range of equipment available (even though future developments are likely to result in improvements) the teacher has an opportunity to be very flexible in his approach, suiting the equipment to the kind of lesson or activity which is being undertaken at any given period. A special school or class for deaf children would, therefore, need to have available equipment suited to the different needs of the pupils to whom it caters and for the kinds of lessons which are appropriate for the class or classes concerned. This matter will be dealt with more specifically in the sections dealing with the use of aids in the development of speech and language.

It may be useful at this stage to summarize the argument so far. An attempt has been made to show how the child's hearing, the nature of speech, and the hearing aid which is being used all interact to pass information to his brain, and how this information needs to be synthesized by the teacher to get the optimum results. Upon the nature of these three factors will depend the pattern of speech which the child receives. His ability to make use of the information is the result of a number of other factors, including his ability, the age at which the aid was first used, the length of time for which it has been used, the kind of help and training he has received, and the presence or absence of other complicating factors in the central nervous system. It is not within the scope of the present work to examine all these other factors in detail, but in the sections which follow an attempt will be made to indicate ways in which hearing aids may be used to help a child to get the greatest benefit from them, recognizing the limitations which the interaction of the three above-mentioned factors has imposed. The limiting factors will be briefly examined in the concluding sections.

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* Haskins, H., and Hardy, W. G., "Clinical Studies in Stereophonic Hearing," *Laryngoscope*, LXX, 1960, p. 1427.

** Wright, H., and Carhart, R., "The Efficiency of Binaural Listening on the Hearing Impaired," *Arch. of Otol.*, 72, 1960, p. 789.

CURRENT BOOKS

EACH November the *Volta Review* prints a list of the most recently published books that are of interest to parents, teachers, otologists, audiologists, speech therapists and other specialists working with the deaf and severely hard of hearing. The books listed below are those which have appeared in print since November, 1960. Some of them have been reviewed in the *Volta Review*. Reviews of others will appear in future issues of the magazine.

Titles marked with an asterisk may be purchased from the Alexander Graham Bell Association for the Deaf. When ordering any of these books, add 20¢ for mailing charges. All other books should be ordered directly from the publishers, or through local bookstores.

AUDIOMETRY AND AUDITORY TRAINING

The A.B.C. of Auditory Training, Sister James Lorene Hogan, C.S.J. University City, Mo.: St. Joseph Institute for the Deaf, 1961. 87 pages, paper, $3.50.

*Clinical Audiometry**, Michel and Claudine Portmann. Springfield, Ill.: Charles C Thomas, 1961. 349 pages, $12.00.

*Play It by Ear**, Edgar L. Lowell and Marguerite Stoner. Los Angeles: John Tracy Clinic, 1961. $3.50.

Teacher's Handbook, Auditory Training. Flint, Mich.: Michigan School for the Deaf, 1960. 64 pages, paper, $1.00.

GENERAL PROFESSIONAL

Children with Impaired Hearing, Alice Streng. Washington: Council for Exceptional Children, 1960. 72 pages, paper, $2.00.

*The Conquest of Deafness**. Ruth E. Bender. Cleveland: The Press of Western Reserve University, 1961. 208 pages, $6.00. Reviewed VR May 1961.

Evaluation and Management of the Brain-Damaged Patient, Jerome S. Tobis and Milton Lowenthal. Springfield, Ill.: Charles C Thomas, 1960. 109 pages, $6.00.

Parents of the Handicapped, Alfred H. Katz. Springfield, Ill.: Charles C Thomas, 1961. 152 pages, $6.00.

Problems in Vocational Counseling, L. H. Lofquist and G. N. England. Dubuque, Iowa: William C. Brown Co., 1961. 186 pages, $3.50.

*The Young Aphasic Child**, Hortense Barry. Washington: Alexander Graham Bell Association for the Deaf, Inc., 1961. 71 pages, cloth, $3.75. Reviewed VR Apr. 1961.

MEDICAL AND SCIENTIFIC

Conference on the Neural Mechanisms of the Auditory and Vestibular Systems (1959). Springfield, Ill.: Charles C Thomas, 1961. $15.75.

Diseases of Children: the Ear, Nose and Throat, J. F. Birrell. London: Cassell & Co., Ltd., 1960. 50 shillings.

MISCELLANEOUS

Learning to Talk: a Parents' Guide to the First Five Years, Margaret C. L. Greene. New York: Harper and Brothers, 1960. 90 pages, $2.50.

One to One, Erling Rolfsrud. Minneapolis: Augsburg Publishing House, 1961. 116 pages, paper, $2.00.

One of Those Children, Elizabeth Neal. London: George Allen and Unwin, Ltd., 1961. 198 pages, 18 shillings.

The Silent Muse, an Anthology of Prose and Poetry by the Deaf, Robert F. Panara, Tares B. Denis and James H. McFarlane, editors. Washington: Gallaudet College, 1960. 314 pages, paper, $3.00.

Wednesday's Child, Margaret Arbore

Berg. Philadelphia: Muhlenberg Press, 1960. 197 pages, $3.50.

PSYCHOLOGY

Physical Disability — a Psychological Approach, Beatrice A. Wright. New York: Harper and Brothers, 1960. 408 pages, $6.00.

Institutionalization and Psycho-Educational Development of Deaf Children, Stephen P. Quigley and D. Robert Frisina. Washington: Council for Exceptional Children, 1961. 49 pages, paper, $2.00.

SPECIAL TEACHING

The Calculus of Structure: a Manual for College Students of English, William C. Stockoe, Jr. Washington: Gallaudet College, 1960. 92 pages, paper, $2.00.

A Short Guide to English Writing, Sara C. Henderson and Bernard L. Greenberg. Washington: Gallaudet College, 1960. 216 pages, paper.

Steps to Composition, Sister James Lorene Hogan, C. S. J. University City, Mo.: St. Joseph Institute for the Deaf, 1961. 34 pages, paper, with accompanying box of pictures, $5.50 per set.

Studies in Linguistics: Sign Language Structure: An Outline of the Visual Communication Systems of America, William C. Stockoe, Jr. Buffalo, N. Y.: University of Buffalo, 1960. 78 pages, paper, $2.00.

*Teaching Arithmetic to Deaf Children,** Veronica O'Neill. Washington: Alexander Graham Bell Association for the Deaf, Inc., 1961. 143 pages, paper, $3.00.

*Teaching Tips for Teachers of the Deaf,** Naomi H. Chamberlain. Buffalo, N. Y.: St. Mary's School for the Deaf, 1960. 36 pages, paper, $1.00.

SPEECH

Better Speech Can Be Fun, Philip N. Goldberg and Esther Braslow. Magnolia, Mass.: Expression Co., 1960. 19 pages, paper.

Causes of Good and Bad Voices, G. Oscar Russell, editor. Washington: Na-

THE CONQUEST OF DEAFNESS

by Ruth E. Bender

The inspiring story of the struggle to bring normal life to those handicapped by deafness has never before been so well or so completely told. Miss Bender, Assistant Clinical Professor at Western Reserve University and supervisor of the Pre-School Hearing Program of the Cleveland Hearing and Speech Center, has traced the work from its earliest beginnings to today's modern developments, with close attention to the pioneers and their methods.

Her book can not fail to provide desirable background and continual inspiration to all who are concerned in any way with the development of the hearing-handicapped.

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THE PRESS OF WESTERN RESERVE UNIVERSITY
2040 Adelbert Road **Cleveland 6, Ohio**

tional Research Foundation. 174 pages, paper.

My Speech Workbook, Book I, Jayne Hall Parker, Danville, Ill.: Interstate Printers and Publishers, 1961. 152 pages, paper, $2.00.

See It! Say It! Use It!—Book I, Beginning Pre-School; Book II, Advanced Pre-School; Book III, Primary Grades, St. Joseph Institute for the Deaf. University City, Mo.: St. Joseph Institute for the Deaf, 1961. Paper, $2.00 per book.

Speech and Auditory Training, Sister Mary Laurentine Lorenz, C. S. J. University City, Mo.: St. Joseph Institute for the Deaf, 1961. 81 pages, paper, $3.00.

Speech and Hearing Problems, a Guide for Teachers and Parents, Charles E. Palmer. Springfield, Ill.: Charles C Thomas, 1961. 152 pages, $5.50.

*Speech Series: Book I—My Speech Book; Book II, Talk, Talk, Talk; Book III—Say and Do; Book IV—Talk About It**, Sisters of St. Francis of Assissi. Milwaukee: St. John's School for the Deaf, 1960-61. Paper, $2.00 per book.

SPEECHREADING

*A Lipreader Must Practice,** Medary Reike Copeland. Washington: Alexander Graham Bell Association for the Deaf, Inc., 1961. 66 pages, paper, $1.50.

*Manual of Curriculum Correlated Speechreading**, Edna McNeil Louargand. Sacramento, Calif.: 1961. 187 pages, paper, $4.00.

*Speech Reading, Jena Method,** 4th edition. A. M. Bunger. Danville, Ill.: Interstate Printers and Publishers, 1961. $3.00.

*Teach Yourself Lip-reading**, Olive M. Wyatt. Springfield, Ill.: Charles C Thomas, 1961. 159 pages, $2.50.

*Visual Communication for the Hard of Hearing, History, Research and Methods,** John J. O'Neill and Herbert J. Oyer. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1961. 163 pages, $5.75.

A NEW TRAINING MANUAL breaks the sound barrier...

THROUGH THE BARRIERS OF DEAFNESS AND ISOLATION:
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By BORIS V. MORKOVIN, Ph.D., Professor Emeritus, University of Southern California; in collaboration with Lucelia M. Moore, M.S., Univerversity of Southern California.

A training manual for audiologists, teachers, therapists, and others working with hearing-impaired children:

FEATURES THE MULTISENSORY LIFE SITUATION APPROACH: utilizing constructive participation in normal activities, it provides a positive experiential background for training residual hearing and kinesthetic-rhythmic awareness, and for developing speech and language skills.

1960, 178 pages, $4.50

The Macmillan Company, 60 Fifth Avenue, New York 11, N. Y.
A Division of The Crowell-Collier Publishing Company

THE SLOW-LEARNING DEAF CHILD

Part II

SISTER M. HENRIELLA

Sister Henriella is a teacher at St. John's School for the Deaf in Milwaukee. This article is the second in a series to be printed in the **Volta Review**, based on the author's thesis for a master's degree from Kent State University.

SINCE Alfred Binet, forerunner in the practice of testing mental ability, first developed his tests as a method for distinguishing between educable and uneducable children in the schools of Paris, many other tests have been perfected and are in use. The Binet test itself has been revised many times, the latest revision having been completed in 1960. It is still one of the most commonly used individual verbal intelligence tests. Those familiar with the Binet Scale know that the majority of the items are classified in these categories: vocabulary, memory, recognition of absurdities, language development, number concepts, similarities and differences and a combination of motor coordination and visual perception.[1]

The I.Q. is only one of the factors to be considered in appraising the child's mental ability. For the teacher, particularly the teacher of slow-learning deaf children, the mental age (M.A.) is of more value than the I.Q. in planning an academic program for the pupil.

Because the I.Q. is only a ratio between the M.A. and the C.A., it gives no indication of the child's mental level. For example, a child who has a mental age of seven years should be achieving at approximately the same level as a seven-year-old of average intelligence. Thus, a child who is nine or ten years old may be achieving at a seven-year-old level because his mental age is approximately seven. The teacher must keep in mind that the expected grade level may not always be achieved, since the correlation between mental age and academic achievement is not perfect.[1]

Teachers and psychologists are aware that frequently there are discrepancies between a child's I.Q. and his academic achievement. They know that a child should not be diagnosed as slow-learning or mentally retarded solely on the basis of academic achievement or the results of intelligence tests. Achievement tests, intelligence tests, academic work and general observations should all be taken into account when determining whether a child is a slow learner. No one test is completely foolproof; and when there is a question as to whether a child is retarded, a number of tests should be administered, if possible.[1]

Individual performance intelligence tests have been devised to utilize a minimum of verbal directions and responses, and were developed for use with individuals having deficiencies in language ability because of hearing loss or foreign background.

Performance tests are all composed of similar types of items, although each battery has characteristics peculiar to that particular type of test. Items which are generally included in performance tests are:

Koh's Block Designs—a number of cubes, each side painted a different color.

Mannequin or object assembly—a number of pieces, with which to construct an object, are presented.

[1] Kirk, Samuel A., and Johnson, G. Orville, *Educating the Retarded Child*, Cambridge, Mass.: Riverside Press, 1951, pp. 40-44.

Form Boards—correct object or figure is to be placed in proper position.
Sequence Stories—a series of pictures are to be placed in proper sequence.
Mazes of various types.

Group intelligence tests may be divided into two large groups, speed tests and power tests. The speed tests, as the name indicates, have a time limit. Power tests generally do not have time limits, or if time limits are observed, they are not as rigid as on the speed tests. In a power test emphasis is placed upon the individual's ability to perform, rather than the speed with which he performs. The primary purpose of testing a mentally handicapped child is to attain an approximation of his ability in certain types of tasks, not the speed with which he can do these. Therefore, the power test seems to be the type best suited for this type of child and this type of diagnosis.

Both the speed and power group intelligence tests attempt to measure the same mental functions as do the individual tests, the only difference being that several persons are being tested at one time. A disadvantage of group tests is that it is possible for the subject to do more guessing. Also, the group test does not allow for the close contact of the examiner with the subject that enables him to study the reactions of the subject and determine whether he is really answering the questions, studying and reasoning out his responses or just making some good guesses. Since it is impossible for the examiner to observe the individual attitude and method of attack, a diagnosis of mental retardation should not be made on the basis of group intelligence tests alone.

Myklebust[2] believes that what the child does in a testing situation is revealing, but frequently what he does not do and the manner in which he does not do it is also revealing clinically.

The age at which deafness occurs usually does not affect intelligence, but it does affect educational progress. A child who becomes deaf at the age of four or five has a decided advantage over the child who was born deaf or became deaf at an earlier age. Regardless of his potential mental ability, the deaf person is tremendously handicapped since the processes of acquiring knowledge are greatly hampered by the lack of language resulting from the inability to hear; and the processes of the mind are held back and mental functions slowed.[3]

Deaf and hard of hearing children are found to be equal to hearing children in intelligence when native ability is assessed through non-verbal or performance tests. It is commonly accepted by investigators that, while the deaf are not found to be inferior intellectually, it is more difficult for them to attain their maximum potential in the same manner the hearing child does.[4]

Burchard and Myklebust,[5] Streng[4] and others have made studies on the intellectual ability of the deaf compared to hearing persons. All report no statistically significant differences in the intelligence quotient. It has also been shown that the age of onset of deafness has no influence on intelligence. From these and like studies it may be concluded that the problem in educating and training most deaf children is not one of dealing with mental retardation.

Best reported that in observation and memory tests and in motor tests the deaf rate higher. He also found fewer deaf persons in the higher intellectual groups and more in the lower intellectual groups.

Deaf children range in intelligence as all children do, from the gifted to the slow learner, with the majority falling in between these two extremes.

The examination of the intellectual

[2] Myklebust, Helmer R., *Auditory Disorders in Children*, New York: Grune and Stratton, 1954, p. 298.

[3] Best, Harry, *Deafness and the Deaf in the United States*, New York: The Macmillan Co., 1943, p. 171.

[4] Streng, Alice, et al., *Hearing Therapy for Children*, New York: Grune and Stratton, Inc., 1955, p. 14.

[5] Burchard, E. G. L., and Myklebust, Helmer R., "A Study of the Effects of Congenital and Adventitious Deafness on Intelligence, Personality and Social Maturity of School Children," *Journal of Educational Psychology*, XXXVI, September, 1945, 321-43.

ability of deaf children presents a difficult problem because of the auditory disorder. Therefore, the results of tests of this type can only be stated in approximate terms. However, they should not be underestimated because these findings, inadequate as they may be, do give some indication of the child's mental capacity.

> . . . Very many of the more important tests of human abilities are verbal tests. It seems that wordlessness may handicap deaf children in non-verbal tests. It is not merely a matter of giving deaf children the necessary preliminary instructions, of making clear to them the nature of the task to be done—such as fitting together the parts of an object or matching diagrams like those of Dr. Raven's Matrices. Investigators who have specialized in testing deaf children have long shown that instructions of this relatively simple type can be conveyed with complete efficiency by demonstration alone. The point is more fundamental — that quite apart from any formal training, ordinary children are constantly hearing other people talk about practical tasks and the routine activities of daily life. They talk about them themselves. These experiences, whether they take the form of listening and comprehension, or of expression in phrases and sentences, involve quick and increasingly accurate thinking. They condition a child's social attitudes, his willingness to cooperate and his level of aspiration.[6]

Various intelligence tests are used in schools for the deaf. The Wechsler Intelligence Scale for Children is by far the most widely used intelligence test in schools for the deaf as reported on the questionnaire sent by the author to superintendents and directors of 137 schools and classes for the deaf in the U.S. and Canada having an enrollment exceeding 40 pupils. Seventy of the questionnaires were acknowledged, and 58 were returned with the questions answered.

Edna Simon Levine gave this rating of the Wechsler Test:

> . . . We are able to obtain some evaluation of the child's skill in handling visual motor tasks, his sensitivity to the world around him, his social awareness, his retentive ability, his ability to profit from past experience, and his overall practical judgement.[7]

Alexander Ewing has reported the following:

> . . . Our workers have found the Wechsler Scales a valuable tool when they have needed to diagnose causes of backwardness or of emotional-behavioristic problems.[8]

P. Gaskill, in a later chapter of the same book, comments:

> . . . After making an extensive examination of tests used in surveys with deaf and ordinary children, it was decided to obtain comparative data on tests fulfilling these specifications: They should give reliable and valid estimate of general intelligence. They should, if possible, throw light on a child's individual strengths and weaknesses.
>
> . . . The Wechsler Tests have been found to be most useful for use with pupils in schools for the deaf at all levels, from the highly intelligent and carefully selected pupils at the Mary Hare Grammar School for the Deaf to the mentally retarded deaf children.[9]

Since the purpose of achievement tests is to measure the amount of information, knowledge, understanding or skill which a pupil has acquired in certain

[6] Ewing, Irene R., and Ewing, A. W. G., *Speech and the Deaf Child*, Washington, D. C.: The Volta Bureau, 1954, pp. 4-5.

[7] Levine, Edna Simon, "Psychological Evaluation in Vocational Adjustment," *American Annals of the Deaf*, CIII, March, 1958, pp. 361-62.

[8] Ewing, Alexander, "Children With Impaired Hearing," *Educational Guidance and the Deaf Child*. Manchester: University of Manchester Press. 1957, p. 18.

[9] Gaskill, P., "Tests of Abilities and Attainments." *Educational Guidance and the Deaf Child*, ed. A. W. G. Ewing, p. 189.

areas no allowances should be made for those handicapped by deafness, because these deaf children must strive to achieve the same academic standards as hearing children if they are to take their place and compete in the outside world. Teachers of the deaf should make use of achievement tests in order to ascertain in which subjects academic retardation is the greatest, so that special emphasis can be given to these subjects.

The first time achievement tests were given to deaf children was shortly before 1920. The results of these tests given at Central Institute for the Deaf showed a four- to five-year educational retardation. In 1951 the results of a five-year study of scholastic achievement given at Central Institute for the Deaf showed only a two- to three-year educational retardation. As would be expected, the greatest retardation was noted in reading and reasoning. The highest scores were in arithmetical computation and language usages. The high score in language was due to the fact that deaf children learn only correct grammatical forms and these tests required only the visual recognition of these forms. Scores in arithmetic computation were good because the language handicap was not involved. All deaf children scored low in comprehension of paragraph meaning, arithmetical reasoning and vocabulary.

Deaf children often appear more retarded in educational achievement than their mental ages would predict. The primary reason for this is the lack of language comprehension. Mental retardation added to the handicap of deafness increases the educational retardation.

Achievement tests also may be divided into two large groups; power and speed tests. It should be kept in mind by the teacher of slow-learning deaf children that the primary interest is the ability of the child to do a task rather than the speed with which he does it. Again the power test is the better test to use.

The construction of the various achievement tests is similar. At the primary level word recognition, sentence comprehension, paragraph comprehension, number concepts and the beginning of fundamental number combinations are tested. At the intermediate level, the skills tested are reading comprehension and speed, spelling, history, geography, language usage and other common subject matter.

The following are some commonly used achievement tests:

American School Achievement Test—Grades 1, 2-3, 4-6, 7-9
California Achievement Tests—Grades 1-2, 3-4, 4-6, 7-9, 9-14
Every Pupil Primary Achievement Tests—Grades 1-3
Gates Reading Readiness Test—Grade 1
Gates Primary Reading Tests—Grades 1, 2.5
Gray Votaw General Achievement Tests—Grades 1-3, 4-6, 5-9, 7-9
Iowa Tests of Basic Skills—Grades 3-9
Metropolitan Readiness Tests—End of Kindergarten and First Grade Entrance
Metropolitan Achievement Tests—Grades 1, 2, 3-4, 5-7.5, 7-9.5
Primary Mental Abilities Tests—Grades 5-7, 7-11, 11-17
Progressive Achievement Tests—Grades 1-3, 4-6, 7-9, 9-13
Stanford Achievement Tests—Grades 1.9-3.5, 3-4, 5-6, 7-9
Wide Range Achievement Tests—Kindergarten to college

Individual Intelligence Tests

The Psychological Corporation
522 Fifth Avenue
New York 36, N. Y.

Binet L
Bender Visual Motor Gestalt Test
Grace Arthur Point Scale of Performance Tests

(The Psychological Corporation)	Nebraska Test of Learning Aptitude for Young Deaf Children Vineland Social Maturity Scale Wechsler Intelligence Scale for Children
C. H. Stoelting Company 424 N. Homan Ave. Chicago 20, Ill.	Leiter International Performance Scale

Group Intelligence Tests

California Test Bureau 5916 Hollywood Blvd. Los Angeles 28, Calif.	California Tests of Mental Maturity
Psychological Corporation 526 Fifth Avenue New York 36, N. Y.	The Chicago Non-Verbal Examination Raven Progressive Matrices
World Book Company 313 Park Hill Ave. Yonkers 5, N. Y.	Goodenough Draw-A-Man Test Otis Quick Scoring Mental Ability Tests

Achievement Tests

Bureau of Educational Measurements Kansas State Teachers College Emporia, Kansas	Every Pupil Primary Achievement Tests
Bureau of Publications Teachers College, Columbia University New York 27, N. Y.	Gates Reading Readiness Tests Gates Primary Reading Tests
California Test Bureau 5916 Hollywood Blvd. Los Angeles 28, Calif.	California Achievement Tests Progressive Achievement Tests
Houghton Mifflin Company 2 Park Street Boston 7, Mass.	Iowa Tests of Basic Skills
The Psychological Corporation 522 Fifth Avenue New York 36, N. Y.	Wide Range Achievement Tests
Public School Publishing Company 509-13 North East St. Bloomington. Ill.	American School Achievement Tests
Science Research Associates 228 S. Wabash Ave. Chicago 4, Ill.	Primary Mental Abilities Tests
The Steck Co. 9th and Lavaca Streets Austin 6, Tex.	Gray Votaw General Achievement Tests
World Book Company 313 Park Hill Ave. Yonkers 5, N. Y.	Metropolitan Readiness Tests Metropolitan Achievement Tests Stanford Achievement Tests

Pamphlets about the Hearing Handicapped for Professional Use

TO make outstanding material available at a minimum cost to more readers, the *Volta Review* frequently reprints articles from the magazine. The list of reprints below will be of particular interest to those desiring professional material in the field of speech and hearing. Readers wishing to order pamphlets from this list may send U. S. postage stamps for amounts under $1.00. For orders of $1.00 or more, please send check or money order.

Action Verbs and Their Meanings: *Alice Streng*	$.30
Aphasia in Children—Diagnosis and Education: *Edna K. Monsees*	.25
Auditory Training for the Primary Grades: *Asals & Ruthven*	.25
Beginning Speechreading: *Mary K. Van Wyk*	.25
Bell, Mrs. Alexander Graham—A Reminiscence: *Mrs. Gilbert Grosvenor*	.15
Benefits of an Oral Climate for all Deaf Children: *Clarence D. O'Connor*	free
Better Speech for Better Living: *Clarence D. O'Connor*	.15
Binaural Hearing Aids for Young Children: *Ruth E. Bender & Elisabeth Wüg*	.25
Can Deafness be Cured by Finger Surgery?: *Victor Goodhill, M.D.*	.15
Cerebral Palsied Child with a Hearing Loss, The: *Marie Orr Shere*	.25
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Teachers' Forum

Teachers of the deaf are invited to contribute their own ideas and experiences to the Teachers' Forum. Address the Volta Review, 1537 35th St., N.W., Washington 7, D. C.

Though the reasons for them differ, deaf children need vocabulary-building activities as much as the hearing children described in the following article, which has been reprinted from The Pointer, *a magazine for teachers of educable mentally retarded children.*

VOCABULARY-BUILDING ACTIVITIES

MRS. ALDA STREBEL

"I can read all the words that tell about my face!" shouted Ted with excitement. He was one of a group of children whose ages ranged from 8 to 11, with I.Q.s from 55 to 75. The reason for the happy shout was that the teacher set aside one period daily for a vocabulary-building activity. A new topic or subject was used each week. The first was a large picture chart of a child's face with each part labeled plainly. At the beginning of the week the teacher pointed on the chart to the different areas of the face, read the words, and each child responded by feeling his own eyes, ears, nose, and mouth. The rest of the time, during this daily period, was spent with games in which the chart words were matched with sets of flash cards. One game was done by having a child (usually a nonreader) point at a part of his face. The children, aligned in teams, would race to see whose side could get the right word first from the sets of flash cards. A child's figure consisting of head, arms, hands, and legs was the next subject to be introduced in the same way.

Students at the Missouri School for the Deaf pictured during a modern dance demonstration presented last year. Director of the dance group was Mrs. Marthada Reed, at that time a teacher and physical education instructor on the Missouri School staff. Mrs. Reed is a graduate of the Arkansas School for the Deaf, and also Gallaudet College. She studied dancing under Ted Shawn and Jose Limon at the Jacob's Pillow Dance Festival, Lee, Mass., in 1946. The dance company is shown here in a scene from Gallaudet Dance, a modern ballet written especially for the group. The ballet tells the story of the education of Alice Cogswell, and interprets Gallaudet's travels in Europe. The dance ends with the scene shown in the photograph.

A subsequent topic was the articles used in the classroom, all illustrated with pictures. Corresponding labels were attached to the chosen objects around the room. Over the door was a large green sign marked EXIT. This was a particularly meaningful word to the children because they saw it in auditoriums and theaters. Next to be undertaken were the simple words pertaining to the children's homes. Then good grooming, emphasizing clean teeth, fingernails, clothes, polished shoes and a hankie, was done in conjunction with the vocabulary chart and daily inspection. Health and good nutrition were given emphasis by the same method, utilizing colorful pictures of the nutritious foods needed daily for a well-balanced diet. Holidays made interesting topics. For Thanksgiving there was the question, "What will you eat?" At Christmas time a large tree was used with pictures of toys, and the words were placed under each one. There was also an introduction to community helpers and the seasons by this same method.

Although these vocabulary-building periods were brief, they were done consistently. This resulted in an increase in the children's oral language activities. There was also a noticeable improvement in the mastery of reading words. The children would point to chart words they found in their books and beam with excitement because of the easy recognition. Learning initial sounds and words that belong to the same families became easier for them, because of this extra practice. "N like in nose," Andy would say. "And nose rhymes with rose."

The old charts and flash cards continued to be used for various review purposes. When a child had free moments, he could go to the old pictures and match the words by himself. Little picture dictionaries were made from the charts. Seatwork based on the vocabulary-building activities was another time-saver for the children's spare moments. Even though words were brought in which were not in the basic vocabularies of their readers, the pupils had

(*Continued on page 464*)

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LEISURE READING for DEAF CHILDREN

PATRICIA BLAIR CORY, Librarian, Lexington School for the Deaf

***Good Night Georgie*, by Dorothy Marino, Dial Press, 1961. $2.50.**

It would be hard to find a simpler story than this one, but for our purposes in a school for the deaf, it is very satisfactory. A small boy, Georgie, visits the farm where his grandmother and grandfather live.

The sentences, one to a page, with clear illustrations appealing to children, go something like this: "These are the eggs that Grandmother sends to market." "These are the cows that give the milk that Grandfather sends to the city."

Georgie's love for Grandfather's dog, and his choice of a sleeping place, bring the story to a conclusion that is amusing for the very young children.

The illustrations are not very attractive, but the story material and the language are very useful with our deaf children. Suitable for children in nursery school, kindergarten and lower school.

***My Daddy's Visiting Our School Today*, by Myra Berry Brown, Franklin Watts, Inc., 1961. $2.50.**

A simple picture-story book which the publisher recommends for hearing children four to seven years old.

The illustrations portray a nursery school where the children paint, swing, play in a sandbox, push their doll carriages and so on. The special event of this story is Daddy's visit to the school.

Small children in lower school can identify with both the environment and the activities. This can be used as a picture story, or the simple text can be used by those just beginning to read.

***Stories of Our American Patriotic Songs*, by John H. Lyons, Vanguard Press, 1940. $3.50.**

Although this is not a new book, it is now available in a very attractive edition. The information in the book is so useful for the deaf that it should be called to the attention of teachers.

For each of the twelve important songs included in the book there are three or four pages of history and anecdotes. Among the songs are "The Star Spangled Banner," "Dixie," "America," "Yankee Doodle" and "The Battle Hymn of the Republic." The language is clear and simple, and the sentences are fairly short.

The story of the circumstances under which the songs were written, and the occasions on which they were first sung, should add to the interest and pleasure of deaf children who may learn the songs.

***From This to That: How Everything Becomes Something*, by Keith W. Jennison, with illustrations by Kathleen Elgin, a McKay Easy Reading Book, 1961. $2.95.**

In a curriculum in which changes of all kinds are constantly being explained, a curriculum which always endeavors to teach the concepts of change and to present those concepts in language, this book is very useful indeed.

The theme of the book is the changing of a tree into paper, and ultimately, the change of the paper into this book which is being read. The author introduces his subject imaginatively by saying, "Once you were a baby. Then you

(*Continued on page* 464)

The *Parents'* SECTION

LETTERS excerpted below were furnished by the Cincinnati Association of Parents and Teachers of Deaf and Hard of Hearing Children. Last year the Association wrote to deaf adults scattered throughout the country requesting advice to help them in bringing up their deaf children. Some of the letters which appear in the Association publication, *The Speech Reader* have been reprinted here. We hope to print more of them from time to time throughout the year.

If you ask: How much can I expect from my child? How will he earn a living? How can parents help?—you may find some of your answers on these pages.

An accountant from Nashville, Tenn., gives his opinion:

"The parents should encourage hobbies for the deaf child, to give him opportunities to explore what goes on. The child should have an interest, and this may lead him to other things which are most beneficial. Even my hobbies have brought me into contact with hearing friends which I may not have made otherwise. I have had several hobbies, but I am a model railroader at heart. My lesser interests are stamp collecting and photography.

"Travel is wonderful! Take your deaf child along on some travels, you may suggest to the parents. It is very worthwhile and educational. Do not leave the child at home all the time! Develop his personality as much as you can among people and friends. Show him examples by being an example yourself."—*Marvin C. Atherton, Jr.*

From Phoenix, Ariz., an insurance agent writes:

"My suggestions to all parents of a deaf child are as follows:

1. Love and Understanding. Place yourself in their position, and do unto them what you would expect them to do unto you.

2. Try not to spoil them. They have to face life when they grow up and if they are spoiled which I was (and still am) it is twice as hard on them.

3. Try and keep them in contact with the hearing world. Too many are kept in schools for the deaf too long, and by the time they get into the hearing world they have lost the art of making friends, except with people of their own handicap. I feel this to be the most important of my suggestions.

4. Help. When possible give them a financial start in a business that the deaf individual is felt capable of handling and, if this is not possible, try to get him a job where the other employees are understanding and can give help.

5. Faith. A deaf child (especially when born deaf) is in a world by himself. He cannot hear music, telephones, TV and radio, and many other things a

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normal child takes for granted. Therefore, it is up to the parents to encourage him not to lose faith in himself.

6. Sense of Humor. I have the acquaintance of many deaf people but very few I know have developed this.

"You state the question most heard was, 'Will my child be able to make a living?' I would imagine this is the main worry of all parents, and I feel they would have little worry if they followed my suggestions and concentrated most on suggestion #3."—*Lewis B. Johnston*

An engineer by profession and amateur pilot from Ft. Worth, Tex., has this to say:

"It is understandable that those worried parents and guardians have great fear for their deaf children. They must resign themselves to the long and serious task in raising their deaf lil'-uns to 'normal' adults with fine assistance from schools. These growing teenagers then must be released to their own world with inspired guidance.

"Here are some suggestions . . .

"They must give their best efforts to help their deaf children when young to become independent of others.

"They must have patience and courage in dealing with their deaf children—also have 'know how.'

"They must look forward to forcing (if necessary) their deaf teenagers to normal colleges and contacts so as to prepare them for fair competition with normal people."—*Herbert W. Lester*

In Lexington, Ky., lives an architect who suggests:

"1. Encourage the child to develop any talents or unusual abilities.
2. Encourage independence from parents as early as possible.
3. Develop lipreading to the highest degree possible.
4. Parents should correct child's speech at all times.
5. Develop good social habits such as skill in dancing, athletics, card playing, good table manners and good grooming.
6. Teach the child to learn not to be sensitive about his or her handicap."—*James S. Frankel*

A letter from an engineer in St. Louis gives these thoughts:

"*Encouragement* of the child's interest in any undertaking in early years with the help of his parents. Invite the child to share with home activities.

"*Encourage* the child's initiative and conversation to overcome his shyness.

"*Always* make the child feel important in home and society.

"*Send* the child to hearing preparatory school or college after training in the deaf school.

"*Encourage* and develop the child's social life.

"*Help* the child to avoid digressing to a state of isolation.

"*See* that the child is alert at all times and help him to be informed in any affair whether boring or interesting.

"*Help train* the child in sense of responsibility in his early years.

"*It is natural* that every deaf child is excitable in his conversation and gesticulation. Help him to tone down his faults and encourage him to talk to you or his friends in more natural ways.

"The parents can make or break their children mentally and morally. If they really give their time and effort, they can make the child into a fine person worthy of friends and business. Talk to them all the time, make them feel important in home life or any environment. The parents must train themselves to forget that deafness is a handicap and must take it in stride in life.

"Good speech, self assurance and extroversion can help the deaf forget the handicap and enjoy the fullness of life."
—*J. Reynolds Medart*

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Deaf Scouts at the Jamboree*

FRANK WITHROW

It was my privilege to attend the Fifth National Boy Scout Jamboree in Colorado Springs during the summer of 1960 with six deaf scouts from the St. Louis Area Council. All of these scouts had at one time attended Central Institute for the Deaf and four were currently enrolled. Three of the boys were members of Troop 132 which is sponsored by C.I.D.; the others were members of troops sponsored by their local churches or schools. Two of the boys were residential pupils, and the group ranged in age from 12 to 17 years. Their scouting ranks were one Second Class, one First Class, three Star Scouts and one Life Scout. The Life Scout had recently been awarded his Eagle Scout badge. It is of interest that two of our group earned all or part of their Jamboree fees. These boys were representative of the scout-age boys at Central Institute.

The St. Louis contingent of Jamboree Scouts consisted of 338 boys and 27 men; and was organized into nine Jamboree troops of 37 boys and 3 adult leaders. We were members of Jamboree Troop 80. Harvey Zucker, a Scoutmaster from the West District, was our Jamboree Scoutmaster. Scout leaders Donald Nichols and Frank Withrow of St. Louis Troop 132 also from the West District, were Jamboree Troop 80's Assistant Scoutmasters. Five talented and capable Junior Leaders served under these adults. The scouts in Troop 80 came from all sections of St. Louis and represented a composite of racial, religious and socio-economic backgrounds. Most of us had never met before we came together in Troop 80. Four patrols of eight boys each were organized. Membership in a given patrol was a matter

* A photograph and earlier note about the 1960 Jamboree participation of these Scouts appeared in the Oct. 1960 *Volta Review*.

of the boy's own choice. No more than two deaf boys were allowed in any one patrol because we felt that this would give both the hearing and deaf boys an optimum chance to know each other. These patrols lived, worked and prepared all of their meals as a unit. The adults and junior leaders rotated among the different patrols for their meals. There were four guests with our troop throughout the Jamboree. This meant that instead of cooking for ten people each patrol had to cook for eleven. This caused some minor difficulty since all of the food was packaged for units of ten, but this did give us an opportunity to live the true scout spirit.

Two of our guests were Japanese Scouts who came to St. Louis before the Jamboree and returned with us. Both before and after the Jamboree they visited in the homes of some of our members. The St. Louis contingent took side trips to Estes Park, Central City, the Air Force Academy and the Garden of the Gods.

At the Jamboree itself there were 56,000 boys and men representing 33 nations and all 50 states. This celebration of Scouting's Fiftieth Anniversary in the United States was the largest gathering of youth ever held in the western world.

It was especially rewarding to observe how effectively the deaf and hearing scouts were able to communicate with one another. The deaf scouts were proficient in their scouting skills and for the most part more than adequately met their responsibilities. It is significant, however, that irritation was evident in the areas of interpersonal relationships and judgments which occur in living in close daily contact. It was difficult for our boys to identify with the group. There appeared to be some lack of consideration for the needs of the group. Specifically some of our group would be late or the last one back to the sightseeing bus at stops, would shove or push in line, would want to be the first to see or do something and generally but

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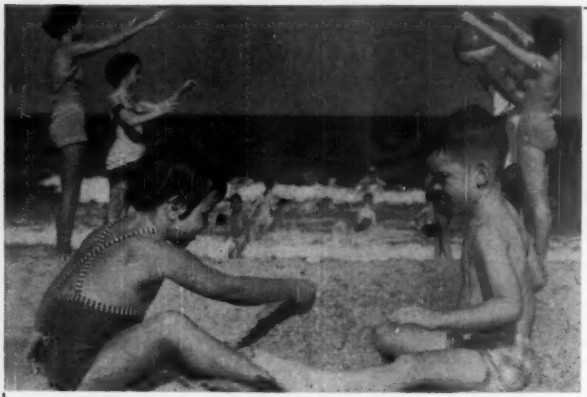
unintentionally disregarded the other fellow's rights. There were some personal habits such as chewing with their mouths open, spitting, not eating certain foods, which made them stand out and caused some irritation between them and their hearing peers.

There were problems among the hearing boys which in many ways were more serious than any we encountered among the deaf. I have mentioned these instances where I felt there were difficulties because in the over-all picture these can easily be avoided. Yet they are serious for the deaf child, because groups tend to be stereotyped by the actions of individuals, and in our case bad social or personal habits could be associated with deafness and not with the individual. The home must be sensitive to these possibilities and act accordingly. It is important that our deaf children be just a little better in their manners and group relationships than their hearing peers. It would be tragic indeed if a deaf child or adult were excluded from a group of hearing persons because of his lack of social poise or awareness. Unfortunately, but I believe realistically, accommodation to this situation lies with the deaf individual and not primarily with his hearing associates. The privilege of being a full and equal member of any group implies responsibilities and not just attendance.

As I have indicated, the deaf scouts were treated just as every other scout in Troop 80, and problems were settled by the Junior Leaders. While none of our deaf scouts held positions of leadership in the troop, they did hold such significant jobs as patrol quartermaster and grubmaster. Our scouts were permitted to roam the entire 2000 acres of the Jamboree site whenever there was free time.

Our deaf boys matched the other boys impressively in their ability to trade, which was one of the most popular ac-

(*Continued on page* 464)



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New affiliates of the Parents' Section include the Tri-County PreSchool for Deaf and Aphasic Children, Bay City, Mich., with 20 members; the Parents Group, Chinchuba Institute for the Deaf, Marrero, La., with 24 members; the Montgomery County Association for Language Handicapped Children, Silver Spring, Md., with 20 members; the Omaha Chapter (Parent Section) of the Alexander Graham Bell Association, Omaha, Neb., with 20 members; and the Parents Group, Preschool Deaf Program, Garden Hills School, Champaign, Ill., with 20 members. The Champaign group is a "first" among our affiliates—annual dues were paid by the Champaign School Board in recognition of the educational value of the publications and films the group will receive.

The Wyoming Association for the Deaf and Hard of Hearing has set up a memorial fund for a teacher training scholarship in memory of Adele Green, teacher of preschool children, who died in September. Construction of the new state oral school for the deaf will start this month.

This and subsequent issues of the *Volta Review* will present short writeups of board members of the Parents' Section, in order for parents to become familiar with them before next summer's national meeting in Detroit. At that time elections will be held for members to serve from 1962-64.

Mr. George W. Fellendorf of Easton, Pa., is Recording Secretary of the Parents' Section. Mr. Fellendorf and his daughter, Linda, are shown here. Linda is attending 4th grade at the Christian Day School run by the Faith Lutheran Church, in Easton. She is active in Brownies, enjoys bowling and card playing. She has apparently adapted well to a binaural hearing aid. Mr. Fellendorf is president of Planetronics, Inc., which manufactures electronic equipment. He and his wife have been active in the Lehigh Valley Parents Group.

CALENDAR OF EVENTS

ALEXANDER GRAHAM BELL ASSOCIATION FOR THE DEAF
1962 SUMMER MEETING—JUNE 26-30, 1962, DETROIT

AMERICAN HEARING SOCIETY—Nov. 2-4: Chicago.

AMERICAN SPEECH AND HEARING ASSOCIATION—Nov. 5-8: Chicago.

ACOUSTICAL SOCIETY OF AMERICA—Nov. 9-11: Cincinnati-Dayton.

WESTERN REGIONAL—COUNCIL FOR EXCEPTIONAL CHILDREN—Nov. 15-18: Seattle.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS—Nov. 17-21: Denver, Colo.

WESTERN STATES SPEECH ASSOCIATION—Nov. 23-25: Fresno, Calif.

NEW ENGLAND SPEECH ASSOCIATION—Nov. 24-25: Conway, N. H.

WEST CENTRAL REGIONAL—COUNCIL FOR EXCEPTIONAL CHILDREN—Nov. 29-Dec. 2: Austin, Tex.

SPEECH ASSOCIATION OF AMERICA—Dec. 27-30: New York.

CONFERENCE OF EXECUTIVES OF AMERICAN SCHOOLS FOR THE DEAF—Apr. 1-6: Austin, Tex.

INTERNATIONAL COUNCIL FOR EXCEPTIONAL CHILDREN—Apr. 24-28: Columbus, Ohio.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL & OTOLOGICAL SOCIETY—May 1-3: Dallas.

ACOUSTICAL SOCIETY OF AMERICA—May 24-26: New York.

NEWS

NEW YORK CITY now has two public schools for the deaf. "The school for the deaf, with direct supervision of 109 teaching positions, 12 administrative positions and manifold programs, had grown to unwieldy proportions," Superintendent of Schools John J. Theobald explains.

The plan is to continue Junior High School 47 (225 East 23rd Street, New York 10, New York) as a school for the deaf headed by a principal, Mrs. M. Catherine Wilman, who will administer 72 teachers with the aid of three assistant principals and five school secretaries.

Another school for the deaf has been set up under Principal John D. Harrington, in Public School 158 (1458 York Avenue, New York 21, New York) with several branches. This school will consist of 37 teachers, an assistant principal, and three school secretaries.

Junior High School 47 will continue to conduct a nursery program for preschool children, an elementary school, special classes for mentally retarded deaf children, a junior high school program, special programs in health education, guidance, library, industrial arts and home economics, and a teacher-training program.

The School for the Deaf at Public School 158 will conduct an aphasic program, an infant program, a lipreading project in 95 centers serving over 500 pupils, an itinerant program, classes for the deaf at Public School 40-Manhattan and Junior High School 104-Manhattan, at Public School 40 on Staten Island, and classes for the deaf in four senior high schools and one evening high school.

EDUCATION IN THE EMERGING NATIONS OF AFRICA will be the theme of the African Seminar and Field Study in Comparative Education which will take place from August 11 to September 15, 1962. Sponsored by the Comparative Education Society and the International Commission of Phi Delta Kappa, the program will provide an insight into the educational problems and way of thinking in the African nations, and will permit personal contacts and discussions among educators, teachers and students. Countries to be included in the field study are Ethiopia, Kenya, Tanganyika, Southern Rhodesia, South Africa, Nigeria, Ghana and Liberia. Other stops may be included in the itinerary. The cost of participation in the program is set at $1495, which includes trans-Atlantic jet economy flights, tourist flights throughout Africa, transfers to and from airports, basic trips, twin-bedded accommodations and seminar lectures. It does not include local transportation, meals, passport and visa fees or other personal expenses. Inquiries should be sent to Dr. Gerald H. Read, Secretary-treasurer, Comparative Education Society, Kent State University, Kent, Ohio.

THE ANNIE SULLIVAN FUND for Fellowships and Research, established by the board of trustees of Perkins School for the Blind, will provide two new services—teacher training and research. The fund will finance a plan designed to attract candidates for the school's training program for teachers of the deaf-blind. The fellowships will be offered to fully trained, experienced teachers of deaf children wishing to enroll in the training program which leads to a master's degree at Boston University. The fellowships will permit teachers to take this special training without financial loss to themselves. The fund will honor Annie Sullivan, who, as Helen Keller's teacher, is probably Perkins' best-known graduate. This is a most appropriate memorial for one who symbolizes the skill and devotion needed in this field of special teaching. The trustees also noted the need for additional research in tests, measurements, curriculum content and teaching methods necessary to improve the teaching of deaf-blind children.

SUSTAINING MEMBERS of the Alexander Graham Bell Association for the Deaf generously give additional support to the Association by paying annual membership dues of $10.00 instead of $5.00. The following sustaining memberships were received in September, and are hereby gratefully acknowledged: Lena Burgdorf, Washington; Dr. Hallowell Davis, St. Louis; Mrs. Rachel D. Davis, San Antonio, Tex.; Margaret Grant, Toronto, Ontario, Canada; Jacqueline Keaster, Los Angeles; George E. Mead, Scarsdale, N. Y.; Mr. & Mrs. James Penn, Minneapolis; Lucy Salles, San Diego, Calif.; Mrs. Girlue Sincell, Washington, and Patricia Stafford, Los Angeles.

DEAF DRIVER INSURANCE PROGRAM has been cancelled because of "the lack of interest of the deaf motorist in joining and supporting this program," reports the Insurance Guidance Service of Pennsylvania, Inc., which was instrumental in starting the program.

DISTRIBUTION OF CAPTIONED FILMS is no longer being handled by the Department of Agriculture. All requests for captioned films should now be made to Indiana State School for the Deaf, 1200 E. 42nd St., Indianapolis 5, Indiana.

PEOPLE: Dr. Helen Schick Lane, principal of Central Institute for the Deaf and a member of the Board of Directors of the Alexander

NOTES

Graham Bell Association for the Deaf, has been made a full professor at Washington University in St. Louis, where her title is Professor of Education. Alice Streng, a member of the Auxiliary Board of the Alexander Graham Bell Association, is on a year's leave of absence from her post as chairman of the Department of Exceptional Children at the University of Wisconsin, and is at the Institute for Research on Exceptional Children at the University of Illinois, where she is teaching some classes in addition to conducting research related to hearing impaired children. New appointments announced are: William C. Greer, executive secretary, Council for Exceptional Children; Joseph P. Youngs, superintendent, Maine School for the Deaf; Charles G. Rawlings, superintendent, Central New York School for the Deaf at Rome, replacing Fred L. Sparks, Jr., now superintendent of the Georgia School for the Deaf; William J. Holloway, superintendent of the Virginia State School at Hampton and Donald Ravell, principal of the Agassiz School for the Deaf, Minneapolis. Richard C. Schofer has been appointed to the staff of the Section on Exceptional Children and Youth, U.S. Office of Education. He will be responsible for the graduate fellowship program in the field of the mentally retarded, made possible by recently enacted legislation.

ROY M. STELLE, superintendent of the Colorado School for the Deaf, was elected president of the American Instructors of the Deaf at a convention of the organization held at Salem, Ore., in June. Other officers elected at that time are: first vice president, Lloyd M. Ambrosen, Maryland; second vice president, Marvin Clatterbuck, Oregon; secretary, John Grace, Texas; treasurer, Thomas Dillon, New Mexico; and editor of the Proceedings, William J. McClure, Indiana.

THE ADVERTISING OF HEARING AIDS, a memorandum distributed by the National Institute for the Deaf, London, England, is an endeavor to prevent misleading advertising or exaggerated claims from being published. The leaflet describes types of deafness, types of hearing aids and the function of the ear. A list of Undesirable Claims specifies those things which should not appear in advertising, such as: "No offer to diagnose, or to give treatment for deafness or any aspect of it is regarded as acceptable. On the contrary, persons should be encouraged to consult a doctor before buying a hearing aid."

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The Alexander Graham Bell Museum in Baddeck, Nova Scotia, is completing a display which will illustrate Dr. Bell's work as a teacher of the deaf. Included will be a scale model of the Volta Bureau, headquarters of the Alexander Graham Bell Association for the Deaf. Craftsmen worked from the original architectural plans to produce the model. A report from Keiler Bentley, director, states that the summer of 1961 was the busiest in the history of the museum, opened in 1956. An average of more than 1000 persons visited the museum daily.

A U. S. patent has been issued for a new hearing aid which is to be set into a false tooth. Inventors are H. K. Puharich, M.D., of Carmel, Calif., and New York City, and Joseph L. Lawrence, Manhattan dentist. The aid consists of a miniature microphone and transmitter worn on the wrist or carried in the pocket and a receiver to be installed in a hollow false tooth. Electric signals are transmitted through the nerve ends in a live tooth next to the false one, via facial nerves to the brain. The aid is not yet available to the public, nor will it be until approval has been received from Federal agencies and professional societies. The Intelectron Corporation has been formed to develop the device.

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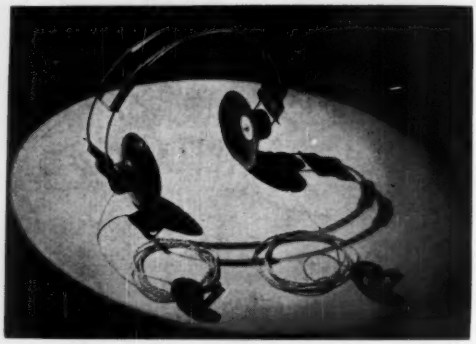

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AN ANNOUNCEMENT received from Lexington School for the Deaf informs us that Carol Rosenthal is the first recipient of a scholarship from the Mary C. New Memorial Fund, established to grant scholarships to either student teachers or former pupils of the school who are going on to secondary school or college. Miss Rosenthal, after attending Lexington, graduated from the Great Neck (N. Y.) high school and is a freshman at Gallaudet College.

A MAJOR EXHIBIT devoted to education will be a part of the Century 21 Exposition, scheduled to open in Seattle, Wash., April, 1962. The project is financed by a $25,000 appropriation in the National Education Association's budget.

COUNTY DAY SCHOOLS for the deaf have been established in Texas serving the following counties: Tarrant, Dallas, Bexar, El Paso and Harris. Application for attendance is made to local school superintendents in Ft. Worth, Dallas, San Antonio, El Paso and Houston. Further enlargement of the Texas program for deaf children is planned with the building of two more cottages and four additional classrooms at the Texas School for the Deaf (Austin) during 1962-63.

RECENT VISITORS to the Association in Washington, D. C., included . . . Miss Leung O. Seung, from the Hong Kong Education Department. Miss Seung was on a 45-day trip to visit facilities for the deaf in this country. She received her training to teach the deaf at the University of Manchester, England, and returns to Hong Kong probably to set up a new school. At the present time only a fraction of the deaf children are being educated and all schools have long waiting lists. . . . Julia Polito Castro, one of the directors of the Instituto Oral Modelo, of Buenos Aires, Argentina, visited the Volta Bureau to look over new publications and select books for the school library. . . . J. L. Badenhost, Principal of the Worcester Skool vir Dowes, Worcester, South Africa, spent two days at the Bureau discussing educational facilities in South Africa and the United States and browsing in the library. Mr. Badenhost visited several schools for the deaf throughout this country, following a tour of European schools. He has promised to send the *Volta Review* a report and some of his observations after he returns to Worcester. . . . from Lagos, Nigeria, Mrs. Molara Coker is visiting several schools and centers for the deaf in this country. A trained nurse, Mrs. Coker helped found the Society for the Care of the Deaf in her city. The Society sent a teacher to be trained in England, and now helps finance a school and clinic where 40 deaf youngsters are being taught to speak and lipread. The school, now in its third year, is partially supported by the government.

(*Continued from page 429*)

actual and necessary travel and subsistence expenses while so serving away from their places of residence, except that any member may waive his right to receive such compensation or allowance, or both. The provisions of section 1003 of the National Defense Education Act of 1958 shall apply to members of the Advisory Committee.

SEC. 6. (a) For the purpose of carrying out the provisions of this Act there are authorized to be appropriated $1,500,000 for the fiscal year ending June 30, 1962, and $1,500,000 for the fiscal year ending June 30, 1963. Any grant for training or scholarships made from an appropriation under this Act for any fiscal year may include such amounts for providing such training or scholarships during succeeding years as the Commissioner may determine.

(b) The provisions of this Act shall terminate on June 30, 1963.

(*Continued from page 432*)

until all of these areas have been explored. A really valid diagnosis can be made only by combining the information of each specialist. As indicated at the beginning of this paper, frequently there are multi-problems present, with baffling over-lays. The influence of one problem *upon* another or the mistaken identity of one *for* the other makes this team approach essential for intelligent diagnosis. The major problem must be determined before any educational planning can be made for the child. This paper describes only one step, but a very important one, in the total diagnostic evaluation of a child who has a speech and hearing handicap.

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(*Continued from page* 458)

tivities at the Jamboree. This gave them an opportunity to form friendships with boys from all sections of our country. These experiences, I believe, nurtured the confidence and security in social relations that are essential if we are to reduce the sense of isolation that appears to be a feature of the personality of some deaf people.

Mr. Withrow is supervisor of the division of speech correction and pathology at Central Institute for the Deaf, and is scoutmaster of Troop 132, sponsored by the school.

(*Continued from page* 452)

developed ability to recognize them. Furthermore, the words selected pertained to objects which were familiar to the youngsters in their home and school environments. Their tactile and perceptual senses were utilized for practical and meaningful experiences. In addition, these activities helped to increase the children's confidence, and gave them a feeling of success.

(*Continued from page* 453)

became a child . . . Someday you will become a grownup." He uses numerous other examples before getting into the most complex example of change:—following the tree to the factory to be made into paper and then into a book.

Excellent illustrations enhance the text. Recommended for children in middle school.

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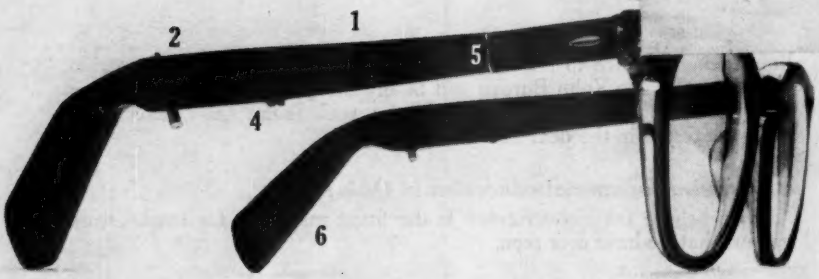

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